THE

EXTRUSION OF GALL-STONES

BY

DIGITAL MANIPULATION.

BY

DR. GEORGE HARLEY, F.R.S.,
Formerly Physician to University College Hospital, and Professor in University College, London.

LONDON:
J. & A. CHURCHILL,
11, NEW BURLINGTON STREET.

1889.

By the same Author.

	s.	d.
DISEASES OF THE LIVER WITH AND WITHOUT JAUNDICE	21	0
INFLAMMATION OF THE LIVER. CIRRHOSIS, ASCITES, HÆMORRHAGES, APOPLEXIES, AND ABSCESSES	5	0
SOUNDING FOR GALL-STONES, AND THEIR SYMPTOMATOLOGY	0	6

London: J. & A. CHURCHILL, 11, New Burlington Street, W.

R39682

THE

EXTRUSION OF GALL-STONES

BY

DIGITAL MANIPULATION.*

HAD modern discoveries in physical science not already abundantly and conclusively demonstrated the fallacy of the hoary-headed saying that "there is nothing new under the sun," the recent improvements in medicine—notably in hepatic surgery—would of themselves have sufficed to dethrone this erroneous adage. The last dozen or so of years has been so fruitful in novelties connected with the diagnosis and treatment of liver diseases, that those who have not kept themselves *au courant* with recent hepatic literature are scarcely able to recognise any of its old land-marks. Even within the last year or two, among other novelties, have been discussed and adopted hepatic phlebotomy, puncturing of Glisson's capsule, sounding for impacted gall-stones, and duodeno-cholecystostomy (uniting gall-bladder and duodenum, so as to make an artificial passage for the bile into the intestines, in cases of permanent occlusion of the common duct).

---

* Reprinted from the *Illustrated Medical News*, 20th October, 1888.

And now I am about to add another novelty to the list; but before doing so I may further remark that, in addition to these quite recent surgical improvements, the researches of the last decade have not only taught us that gall-stones, but even all the other forms of liver concretions—to wit, inspissated bile, biliary sand, and gravel—which occasionally give rise to such painful symptoms, are by no means the mere harmless pathological curiosities we were wont to believe; as well as that the co-existence of the formerly supposed-to-be pathognomic sign of jaundice, is no more necessary for the diagnosis of a biliary concretion in any given case, than it is to enable the expert to prognose the insidious approach of a fatal termination; and that, too, even in those exceptional cases where the signs and symptoms lead the uninitiated to regard them as being merely the direct result of a simple form of dyspepsia, a temporary colonitis, a subacute peritonitis, or, it may be, a transient bilious indigestion.

Such being the case, it is possible that the reader will not feel displeased at my giving a brief *résumé* of what I consider to be the diagnostic signs and symptoms of biliary concretions, before entering upon the consideration of the extrusion of gall-stones by digital manipulation.

1st. I may remark that all forms of biliary concretions—namely, gall-stones, gravel, inspissated bile, and mere biliary sand—give rise, as a general rule, to precisely identical kinds of signs and symptoms. 2nd. That every one of them, not even biliary sand excepted, has again and again proved fatal without their existence having been diagnosed, or so much even as been suspected, during the life of the patient. 3rd. That biliary concretions occur at every period of life between the cradle and the grave 4th. That the epileptic convulsions of infancy, as well as the "windy spasms" of the babe at the breast, are oftentimes due to the local irritation caused by biliary concretions. 5th. That instead of being rare varieties of liver disease, biliary concretions, in one form or another, are the commonest of all the various kinds of hepatic affections met with among the better class of patients in this country. 6th. Biliary concretions—more especially in the shape of gall-stones—are not only much more frequently than is usually supposed an immediate cause of death, but when long impacted in the bile ducts—either in the hepatic, cystic, or common duct—a fruitful cause of hepatitis, hypertrophic indurations, cancerous and other forms of liver tissue degenerations, as well as of permanent occlusions of the ducts and atrophic cirrhosis, attended with ascites and dropsy. It is lucky, then, that the days of our ignorance, when biliary concretions were regarded as harmless curiosities, have been buried in oblivion by the united efforts of modern experimental physiology and physiological chemistry; the two departments of scientific medicine which, within the last quarter of a century, have done more to place liver pathology on the proud pedestal it now occupies than all the previous centuries of practical clinical work put together.

Moreover, not only in the majority of instances can we now diagnose the presence of biliary concretions in the bile ducts with comparative facility, as well as certainty, but it is oftentimes within our power to fix upon the exact spot at which the concretion is acting deleteriously, as may be seen by the subjoined table, which is a modification of the one I gave in my pamphlet entitled "Sounding for Gall-stones." *

The annexed table shows that biliary concretions *never* cause jaundice except when they occupy either the hepatic or the common bile duct. And what is more, not even then (although they may be by their presence killing the patient), unless they completely obstruct the flow of bile into the intestines. It is the want of this single piece of knowledge which so frequently leads men to fritter away the lives of patients by treating cases of biliary concretions as if they were merely stomachal or intes-

* London: Churchill and Co., New Burlington Street. 1884.

tinal derangements, until the curable stage of the mischief has slipped away, and there is nothing left to be done but to allow the tomb to claim the victim.

Although the diagnosis of the presence of a biliary concretion is shown by the table opposite to be reducible to almost a positive certainty, it is not on this account to be imagined that the differentiation of the various kinds of concretions (even when they are actively leading to an inevitable fatal termination) is equally easy. For, on the contrary, the various signs and symptoms produced by all the four different kinds of biliary concretions, when they occupy similar situations, are so very much alike that the task of differentiating between a gall-stone, inspissated bile, gravel, and biliary sand sometimes even baffles the expert specialist. And strange to say, not only has small biliary gravel proved in some cases as rapidly fatal as a large gall-stone, but even fine biliary sand has sufficed to produce as deadly an occlusion of the common bile duct as hard masses of inspissated bile itself. So that until the concretion, or part of the concretion, has come away and been chemically examined, it may be quite beyond human power to say what its real nature is. All that is possible to say with certainty being that it is a biliary concretion, in such or such a situation, that is giving rise to the symptoms. It happens, fortunately alike for doctor and patient, that the mere differentiation of the kind of biliary concretion which is giving rise to the dangerous symptoms is, comparatively speaking, a matter of minor importance; so long as its existence and its whereabouts have been correctly diagnosed. For the main object in treatment in all cases is to get the concretion out of the patient's body as speedily and with as little pain as possible. For the longer a biliary concretion —be its nature what it may—remains in the system, the bigger and bigger is it likely to become. And the larger it is, the more difficult is its extrusion, and consequently the greater is the danger of its leading to an ultimately fatal termination.

The presence of the signs and symptoms of the biliary concretions is indicated by figures, their absence by lines.

Biliary concretions impacted in—	Indigestion and flatulent distension of stomach and intestines.	Dull aching or acute epigastric pain.	Nausea or vomiting.	Chills or shiverings.	Tenderness on pressure over gall-bladder or liver.	Jaundiced skin and eyes.	Pipe-clay-coloured stools.	Saffron or porter-coloured urine.	Itching of the skin.	Distended gall-bladder.	Enlarged liver.
Intra-hepatic ducts	1	2	—	—	3	—	—	—	—	—	—
Cystic duct	1	2	3	4	5	—	—	—	—	*	—
Hepatic duct	1	2	3	4	5	6	7	8	9	—	10
Common bile duct	1	2	3	4	5	6	7	8	9	10	11

---

* Although the gall-bladder is in these cases never distended with bile, if the impaction be complete, and is continued sufficiently long, it may become distended by white mucus-secretion. For the *modus operandi* in the formation of white liquids in the gall-bladder, see the writer's book on "Diseases of the Liver, with and without Jaundice," where its physiology as well as pathology is given in detail.

Vast as have been the improvements made within the last few years in abdominal surgery, one can scarcely as yet honestly say that the surgical removal of impacted biliary concretions, has been attended with sufficiently satisfactory results, to enable one "with a light heart" to recommend a patient to run the risk of the operation, unless the case appears to be otherwise utterly hopeless. For although gall-stones have again and again been safely removed by the surgeon's knife from the gall-bladder, it is most unfortunately just when they are in that situation that they had much better, in by far the majority of cases, be left alone. For while lying free in the gall-bladder a gall-stone is in no case dangerous to life. It is only when it attempts to get out of it by ulceration, or permanently blocks up the biliary passages so completely as to totally obstruct the flow of bile into the intestines, that it actually endangers life, and it unfortunately happens that it is precisely those very cases which most frequently succumb after surgical interference. It is to be hoped, however, that the day is not far distant when surgeons will have so far improved their methods of procedure as to have reduced the percentage of mortality to a sufficiently low figure as to justify one in recommending the operation. Meanwhile, there is fortunately a way of getting not only sand, inspissated bile, and gravel, but even actual gall-stones, not bigger than small hazel-nuts, out of the gall-bladder as well as the cystic and common bile ducts—without employing the knife—and that, too, merely, as about to be described, by a well-regulated system of digital manipulation through the intact abdominal parietes. Although I had for many years,* in suitable cases of concretionary obstructive jaundice, practised this method of forcibly extruding the obstructing body from the biliary passages into the duodenum, from knowing that one can never feel certain that the obstructing body may not be in the very act of ulcerating its way out of the duct, and consequently render the operation dangerous, I hesitated publishing the method till 1886, when I alluded to it in a foot-note at p. 10 of my little book on inflammations of the liver,† in the following words: "As probably some of my readers may never have heard of my process of kneading, which I have successfully practised during the last few years, not only in cases of biliary sand and small gall-stones, but likewise in renal calculi impacted in the ureters, I may as well mention that it simply consists in forcing the concretions in the one set of cases along the bile ducts into the intestines, in the other along the ureters into the bladder, by judiciously regulated digital pressure, the only cases in which kneading is counterindicated being those in which there is a tendency to ulceration of the ducts."

---

* The first successful case I ever had of finding a gall-stone after practising the process was in 1871, when three stones were found in the stools during a month's treatment; and although the patient lived for sixteen years afterwards—she only died last year—she was never again troubled in the same way. The history of the case is given on page 665 of my book on "Diseases of the Liver," and it will be found to be well worth perusal, seeing that before I diagnosed it as one of gall-stones the patient was supposed to be dying of cancer, and being, accordingly, erroneously treated

Since the above paragraph was published several have tried the method, and some have totally failed to derive any advantages from it. This non-success, however, has, I believe, arisen from their confounding it with the process of shampooing the abdomen —massage, as it is nowadays called—to which (as will be presently seen) it bears not the slightest resemblance.

So successful in my hands has proved this artificial mode of extruding biliary sand, gravel, and small calculi from both the gall-bladder and the bile-ducts, and getting them voided by stool, that it has now become with me a sort of routine form of practice. Rarely, indeed, does a day pass in which I do not try it on two or three suitable patients; and were I to relate only my more successful cases, without accompanying them with names and full details, so astounding would their results appear that I feel sure they would have but little chance of being credited by any not themselves the possessors of ingenuous minds. For example, would it be at all likely for a non-ingenuous-minded individual to believe that a gall-stone the size of a small hazel-nut, supposed to have been for several months firmly impacted in the common bile-duct of a lady aged fifty-five, was, at the very moment that her death seemed imminent, safely extruded into the intestines after ten or twelve minutes' kneading of the distended gall-bladder, and not only voided by stool, but actually found in the chamber-pot within forty-four hours afterwards? Fig. 1 is a drawing of the stone, of its natural size. Or would it not seem a mere fiction, were I to say that two facetted, sharp, angular-shaped gall-stones, the size of field-beans, were pushed out of the common bile duct, wherein a minute before they appeared as if immovably impacted, of a gentleman aged fifty-two, during the kneading process, which did not occupy above a quarter of an hour, and that the gentleman not only obtained immediate relief, but was himself able to search for and find one of them in the first stool he afterwards passed—which was in ten hours—and pick out the second stone from the next stool, voided exactly twenty hours after I had first seen him? Some

---

† "Inflammations of the Liver and their Sequelæ: Atrophy, Cirrhosis, Ascites, Hæmorrhages, Apoplexy, and Hepatic Abscesses." (London: Churchill, New Burlington Street.)

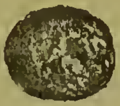

Fig. 1.—Gall-stone artificially extruded by digital manipulation from the common bile duct of a lady, aged fifty-five, and found in the stool forty-four hours after the operation. After having been supposed to have been impacted in the duct for nine months.

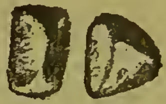

Fig. 2.—Two hard and sharp-cornered gall-stones artificially extruded from the common bile duct (in which they had been for three weeks firmly impacted) of a gentleman, aged fifty-two. The first stone being found in a stool passed ten hours, and the second found in one passed twenty hours after the first time digital manipulation was practised upon the patient. The drawings of them are of the natural size.

facts are stranger than fiction, and these, strange as they no doubt appear to be, are indubitable facts, and what is more, facts that can be substantiated. Such cases as these of the incredible group I shall leave for the present, and proceed to narrate others from among the ordinary run of cases met with. The first I will relate is one possessing the exceptional advantage of having been seen by no less than nine other practitioners during the four or five years the patient was under my special medical care, among whom was a former President of the College of Physicians and two of our leading operating surgeons, so that there is no need of my giving names in order to guarantee the truthfulness of its clinical history. Suffice it to say that the patient was a lady of about sixty summers and of high rank, who had during the previous twenty years of her life been treated for dyspepsia and flatulent colic by a number of different doctors. When first called to her bedside I diagnosed a gall-stone firmly impacted in the common bile duct; and as I proposed to subject her gall-bladder to digital manipulation, in order to force the impacted concretion out of the duct, it was arranged that as soon as possible she should proceed to London. The distance was only fifty miles, and yet such was the fatiguing effect the railway journey had upon her, that when she arrived in town she was in a state of collapse; from which she did not sufficiently recover to admit of my beginning the treatment for three days, and it was not until a week more had passed away that the impacted stone was successfully dislodged from the duct, and only after four days more was it discovered in the stool. The stone, which was of the size of a small field-bean, proved on analysis to consist almost entirely of cholesterin; and although it was not facetted, there was no doubt in my mind that it was one of many. For I could feel the gall-bladder quite distinctly, as a hard ovoid body, the size of a man's fist, about three inches to the left of the umbilicus, and immediately below the enlarged liver. A daily course of digital manipulation of the gall-bladder was accordingly recommended and had recourse to, with the result that over seventy gall-stones were found in the stools during the subsequent seven months. At the end of that time, the gall-bladder appearing to have been completely emptied of all its calculi, the patient left for the country, and it is no exaggeration to say that soon afterwards all the dyspeptic symptoms which she had suffered from for years previously disappeared. In this case rarely more than one gall-stone was voided at a time, though occasionally, after a biggish one had for six or seven hours blocked up the duct, and caused jaundice before coming away two or three smaller ones rapidly followed its extrusion, without their producing any other symptoms than a trifling epigastric discomfort. It must be added that the calculi differed very much, both as regards their naked-eye appearances and chemical constitution, some being almost white, others brown, and not a few blackish green, differences no doubt arising from the stones having been formed at various times and under different conditions during the twenty or more years the patient had suffered from the biliary derangements which had not only been originally diagnosed, but always previously treated, as severe indigestions.

I will now refer to a case of an entirely different character, in which the operation was only had recourse to at distant intervals over a period of nearly two years, and where the stones, though varying from the size of a grape-seed to that of a small hazel-nut, were almost all of an identical colour and composition. The case differs still further from the preceding, inasmuch as the calculi were extruded at irregular intervals and in runs from the gall-bladder. The patient, a Worcestershire gentleman, aged sixty-three, first came to me in 1886; and as I have unfortunately mislaid an admirable report of his case he kindly wrote out for me, I am compelled to simply copy what is written on the label of the bottle containing his gall-stones, and append thereto a letter I received from him in February. The letter I send to the printer, with the request to print it exactly as it stands, omitting only the address and name of its writer. On the label of the bottle is, "Passed, after kneading, nineteen gall-stones up to the 18th August, 1886. 11th September, fifty-seven gall-stones. 4th December, eighty gall-stones." Besides these three specially recorded large groups of stones found in the stools, I also received from him at different times smaller groups, varying in number from three up to seven or eight. So that I calculate that this patient must have altogether passed, during the two years he was under treatment, not many less than 200 gall-stones! some of them, too, especially the three largest, being of a most unusually irregular shape, and with very sharp corners upon them. The last letter the patient sent to me runs as follows :—

"*Feb. 6th*, 1888.

"At your request I now continue the history of my case (gall-stones) from the time I reported to you the passing of eighty stones in two months during the autumn of 1886. I am very thankful to say the history of the case since then is very short, consisting of only one severe turn I had in March, 1887, and being from home at the time, we could not ascertain what number of stones passed. Since then I have enjoyed excellent health, and though now sixty-five years of age, am as active as when I was forty. Having gone eleven months without an attack, I think I may fairly hope you have eradicated them."

Having finished my narrative of results, I shall now explain the mode of procedure.

In the first place it may be taken for granted that as almost all biliary concretions are formed in the gall-bladder, if the gall-bladder regularly emptied itself, as it ought to do, every day, the bile would never have the chance of becoming sufficiently concentrated to coagulate into masses; nor would any of its solid constituents find time enough to separate by precipitation from its fluids and assume the form of stratified calculi, nor any of its cholesterin be able to crystallise into sand, gravel, or gall-stones. In the second place the natural exit of bile from the gall-bladder being by way of the cystic and common bile ducts into the intestines, even should, from some accident or another, minute concretions of any kind have found time to form in the gall-bladder, were all the bile daily extruded from it, the minute concretions would no doubt be at the same time extruded along with the bile, so long, at least, as they had not become sufficiently large to find a difficulty in getting into the cystic duct.

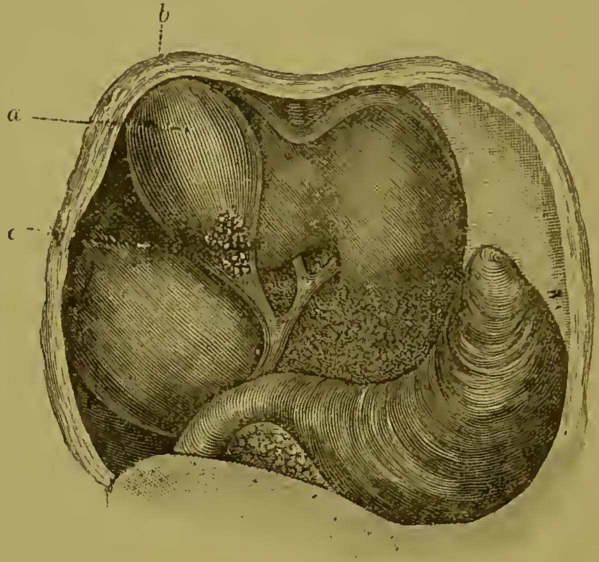

FIG. 3.

Fig. 3.—A gall-bladder so distended with bile (on account of duct obstruction) as to cause a slight elevation of the superjacent abdominal parietes, *b*. Biliary concretions at the mouth of the cystic duct, *c*.

Let us now compare a human gall-bladder to a pear-shaped indiarubber syringe. We squeeze the syringe, and out flow its contents. And should it happen that the neck of the syringe or its cannula has got blocked up by a piece of dirt, so long as the syringe is full of water, all we have to do is to give it a still smarter squeeze, so as to jerk the water against the obstructing body, and if the obstructing body be not too large it is suddenly dislodged and extruded along with the water. In this case we grasp the syringe with the hand; a proceeding not absolutely necessary, however, for if we merely forcibly press the two fore-fingers against the fundus of the syringe so as to involute its fundus—see fig. 4—it will be equally compelled to expel its contents.

Turn now to the gall-bladder. We cannot grasp it in the hand through the intact abdominal walls, but as its fundus, when it is distended with bile, presses directly against the abdominal parietes—sometimes even to such an extent as to elevate them slightly, as is represented in fig. 3—there is no difficulty whatever in applying pressure to the fundus of the gall-bladder by the tips of the fingers pressed against the integuments immediately over it. And just as in the case of the indiarubber syringe, the digital pressure applied to the fundus of the distended gall-bladder will be equally successful in making it expel its contents along the ducts into the intestines, in all cases where the obstructing body—be it inspissated bile, sand, gravel, or even a gall-stone—is sufficiently small as to be able to be propelled by the bile along the ducts into the intestines, as represented in fig. 4.

Moreover, from the fact of the ducts being dilatable, even impacted concretions as large as hazel-nuts may be forced along them by daily judiciously applied slow and graduated pressure, especially when the dilating process is aided by the administration of medicines. There is always one point in favour of the operator, namely, that in cases where an obstruction to the flow of bile is caused by a biliary concretion, the gall-bladder is always more or less distended with fluid. And this has a double advantage, for, firstly, it renders the situation of the organ more easily detected, and secondly, there is plenty of bile in it for the operator to force against the obstruction and thus induce its forcible extrusion from the duct.

It may be as well for me to remark that although a distended gall-bladder is easily enough localised through thin abdominal parietes, its situation is not at all readily discoverable through fat ones, unless it be of large size ; while a normal-sized gall-bladder, as is well known, is undetectable in either case.

FIG, 4,

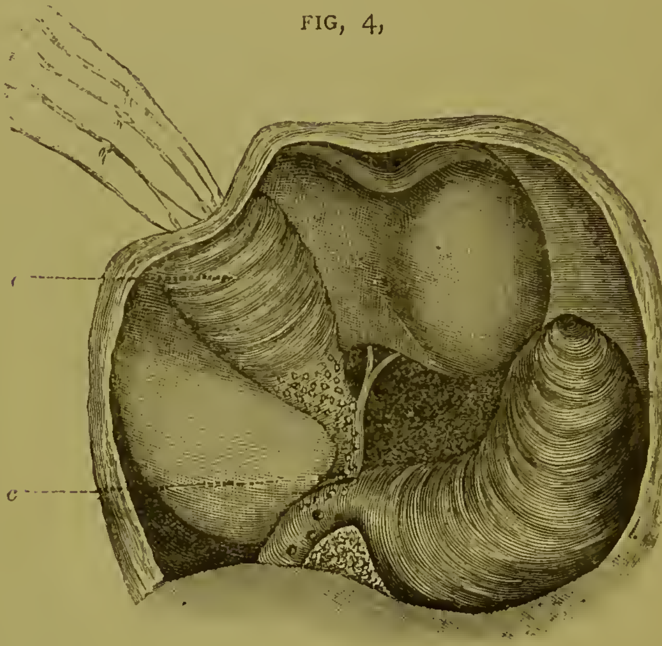

Fig. 4.—A distended gall-bladder being emptied of its contents by digital pressure on the abdominal walls. Showing the biliary concretions being extruded from the orifice of the common bile-duct into the intestines. B.

In order to assist gentlemen in finding the gall-bladder, who are anxious to practice the above-described method of extruding gall-stones by digital pressure, I here subjoin an anatomical plate illustrating its usual position in a healthy individual. It is a copy of the woodcut given by Gaston (in his paper on duodeno-cholecystostomy),* which is itself, again, a slightly modified copy of Hinke's plate. Fig. 5.

Now, although the normal situation of the gall-bladder is here truthfully represented, one must not expect always to find it in this situation when the liver is enlarged or otherwise diseased. For sometimes the gall-bladder is found much nearer to, or much farther away from the mesial line. In a case I saw with Dr. Cook, of Forest Hill, on the 3rd Oct., although the distended gall-bladder was beautifully distinct to the touch, it was both much nearer to the mesial line and to the umbilicus than is here represented. This arose from the cause of the occlusion of the duct being an

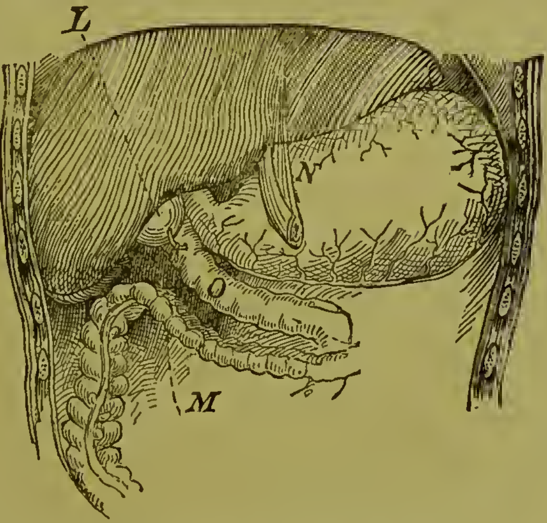

Fig. 5.

L The gall-bladder of normal size and position. O Duodenum.
M. The Colon. N. Suspensory ligament.

---

* *British Medical Journal*, 5th February, 1887.

organic growth, which in developing had pushed the gall-bladder from its normal position.

I would further beg to remind my readers that a few failures must not discourage them, as human fingers, like human eyes, require education; and that just as the trained eye of "the old salt" is not only able to detect on the horizon a vessel, but also to discover her rig, and probably even make a tolerably good guess at her tonnage, long before the uneducated eyes of the landsman can so much as perceive a dark speck in the distance, they are not to abandon their design on account of being at first unsuccessful. For, without doubt, perseverance and opportunity will, in the end, enable them to discover gall-bladders, equally as readily as the trained fingers of the expert do, even through abdominal parietes so thick, that untrained hands cannot so much as make out the boundary of the solid liver through them. While, again, they will find that ultimately they will be able to extrude small impacted biliary concretions—be they in the shape of sand, gravel, or stones—from the bile duct into the duodenum with as much certainty and safety as they can pass a catheter through a stricture into a human urinary bladder. At the same time, for the sake of their patients' welfare as well as their own reputation, they must never forget to be as careful in the mode of operative procedure in the one case as they would be in the other, as neither the one nor the other operation is invariably unattended by danger.